

WHAT IS CLAIMED IS:

1 1. An optical switching system, the system comprising:
2 a housing;
3 an input device coupled to the housing;
4 an output device coupled to the housing;
5 a first switch fabric coupled between the input device and coupled between the
6 output device, the first switch fabric comprising a plurality of MEMS based switching
7 devices, one or more of the MEMS based switching device being capable of deflecting
8 optical signals;
9 a second switch fabric coupled between the input device and coupled between the
10 output device, the second switch fabric comprising a plurality of MEMS based switching
11 devices, one or more of the MEMS based switching device being capable of deflecting
12 optical signals;
13 an input fiber bundle coupled to the input device;
14 an output fiber bundle coupled to the output device;
15 a first switching device coupled to the first switch fabric and coupled to the
16 second switch fabric, the first switching device also being coupled to the input device for
17 receiving a beam from one of the input fibers and directing the beam to the first switch
18 fabric or the second switch fabric depending upon a predetermined criteria;
19 a second switch device coupled to the first switch fabric and coupled to the
20 second switch fabric, the second switching device also being coupled to the output device
21 for receiving the beam from either the first switch fabric or the second switch fabric
22 depending upon the predetermined criteria; and
23 a control device coupled to the first switch device and the second switch device,
24 the control device providing a signal to determine if the beam is to be directed to the first
25 switch fabric or the second switch fabric based upon the predetermined criteria.

1 2. The system of claim 1 wherein each of the MEMS based switching devices
2 is capable of directing an optical signal from the input fiber bundle to the output fiber
3 bundle.

1 3. The system of claim 1 wherein the first switch fabric is a primary switch
2 fabric and the second switch fabric is a backup switch fabric.

1 4. The system of claim 1 wherein the first switching device is provided on a
2 fiber interface card.

1 5. The system of claim 1 wherein the second switching device is provided on
2 a fiber interface card.

1 6. The system of claim 1 further comprising a position beam source coupled
2 to the first switching device.

1 7. The system of claim 6 further comprising a sensor device coupled to the
2 second switching device.

1 8. The system of claim 1 wherein the first switching device is a two by two
2 switch.

1 9. The system of claim 1 wherein the second switching device is a two by
2 two switch.

1 10. The system of claim 1 further comprising a position beam source coupled
2 to the first switching device and a sensor device coupled to the second switching device,
3 the second switching device being adapted to receive a position beam from the position
4 beam source.

1 11. A method of operating an optical switching system, the method
2 comprising:

3 tapping a first portion of an incoming data beam from an incoming source;

4 transferring the incoming data beam from the incoming source to a first path
5 provided by a first MEMS based switching fabric;

6 transferring a monitoring source to monitor a second path of provided by second
7 MEMS based switch fabric, while the second path of the second MEMS based switch
8 fabric is in a stand by mode;

9 tapping a second portion of an outgoing data beam provided by the first MEMS
10 based switching fabric; and

11 determining if a process condition of the first path by at least the second portion of
12 the outgoing data beam.

- 1 12. The method of claim 11 wherein the determining is provided by the first
2 portion of the incoming data beam.
- 1 13. The method of claim 11 wherein the incoming data beam and the outgoing
2 data beam are continuous.
- 1 14. The method of claim 11 wherein the second MEMS based switch fabric is
2 redundant.
- 1 15. The method of claim 11 wherein the incoming data beam and the
2 monitoring beam can be switch to traverse through either the first path or the second path.